

WHAT IS CLAIMED IS:

- 1 1. A method of detecting the presence or absence of *Bacillus anthracis* in a
2 test sample, the method comprising:
3 contacting a test sample with a capture reagent that can bind to a
4 *Bacillus anthracis* surface array protein, wherein the capture reagent forms a complex with
5 the surface array protein if the surface array protein is present in the test sample; and
6 detecting whether surface array protein is bound to the capture reagent,
7 wherein the presence of surface array protein is indicative of the presence of *Bacillus*
8 *anthracis* in the test sample.
- 1 2. The method of claim 1, wherein the surface array protein comprises a
2 polypeptide having an amino acid sequence of SEQ ID NO:1.
- 1 3. The method of claim 1, wherein the *B. anthracis* strain is encapsulated.
- 1 4. The method of claim 1, wherein the capture reagent comprises an
2 antibody which binds to surface array protein.
- 1 5. The method of claim 4, wherein the antibody is a recombinant antibody.
- 1 6. The method of claim 5, wherein the antibody is a recombinant
2 polyclonal antibody.
- 1 7. The method of claim 5, wherein the antibody is a monoclonal antibody.
- 1 8. The method of claim 1, wherein the test sample is collected from a site
2 of suspected or threatened anthrax contamination.
- 1 9. The method of claim 8, wherein the test sample is collected using a
2 cyclonic collection device.

- 1 10. The method of claim 1, wherein the test sample is not cultured prior to
2 contacting with the capture reagent.
- 1 11. The method of claim 1, wherein the capture reagent is immobilized on a
2 solid support.
- 1 12. The method of claim 11, wherein the solid support is a microtiter dish.
- 1 13. The method of claim 11, wherein the capture reagent is immobilized on
2 the solid support prior to contacting the capture reagent with the test sample.
- 1 14. The method of claim 1, wherein the method can detect *B. anthracis* at
2 concentrations as low as about 10,000 cfu/ml.
- 1 15. The method of claim 14, wherein the method can detect *B. anthracis* at
2 concentrations as low as about 5,000 cfu/ml.
- 1 16. The method of claim 15, wherein the method can detect *B. anthracis* at
2 concentrations as low as about 1,800 cfu/ml.
- 1 17. The method of claim 1, wherein the detection of the surface array
2 protein is performed by contacting the surface array protein with a detection reagent that can
3 bind to the surface array protein.
- 1 18. The method of claim 17, wherein the detection reagent comprises an
2 antibody which binds to surface array protein.
- 1 19. The method of claim 17, wherein the detection reagent binds to a
2 different epitope of the surface array protein than does the capture reagent.
- 1 20. The method of claim 17, wherein the detection reagent comprises a
2 detectable label.

1 21. The method of claim 20, wherein the detectable label is selected from
2 the group consisting of a radioactive label, a fluorophore, a dye, an enzyme, and a
3 chemiluminescent label.

1 22. A kit for detecting the presence or absence of *Bacillus anthracis* in a
2 sample, the kit comprising:
3 a solid support upon which is immobilized a capture reagent that can
4 bind to a surface array protein of *Bacillus anthracis*; and
5 a detection reagent which binds to the surface array protein.

1 23. The kit of claim 22, wherein the solid support is a microtiter dish.

1 24. The kit of claim 22, wherein the capture reagent is an antibody.

1 25. The kit of claim 24, wherein the antibody is a recombinant polyclonal
2 antibody.

1 26. The kit of claim 24, wherein the antibody is a monoclonal antibody.

1 27. The kit of claim 22, wherein the capture reagent is a mixture of
2 monoclonal and polyclonal antibody preparations.

1 28. The kit of claim 22, wherein the kit further comprises written
2 instructions for using the kit to determine whether a test sample contains *B. anthracis*.

1 29. The kit according to claim 22, wherein the kit further comprises a
2 positive control that comprises a polypeptide that comprises an antigenic determinant of a *B.*
3 *anthracis* surface array protein.

1 30. The kit according to claim 29, wherein the surface array protein
2 comprises an amino acid sequence of SEQ ID NO:1.

- 1 31. A recombinant polyclonal antibody preparation that specifically binds to
2 an antigenic determinant of a surface array protein of *Bacillus anthracis*.
- 1 32. The recombinant polyclonal antibody preparation of claim 31, wherein
2 the surface array protein comprises an amino acid sequence of SEQ ID NO:1.